

MEDICAL EDUCATION, CHARACTER,  
AND CONDUCT.

INTRODUCTORY ADDRESSES,

*DELIVERED TO STUDENTS OF MEDICINE IN  
EDINBURGH AND GLASGOW.*

1855-1866-1882.

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Disciples do owe unto masters only a temporary belief, and a suspension of their own judgment till they be fully instructed, and not an absolute resignation, or perpetual captivity : and therefore . . . . so let great authors have their due, as Time, which is the author of authors, be not deprived of his due, which is, further and further to discover truth.—FRANCIS BACON, *Of the Advancement of Learning*, Book I.

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## INTRODUCTORY ADDRESS

DELIVERED IN THE UNIVERSITY OF GLASGOW, TO THE  
STUDENTS OF MEDICINE OF THE SESSION 1882-83.

GENTLEMEN --I appear before you to-day at the request of my colleagues ; not, certainly, without a feeling of satisfaction and even pleasure in my task, but also with a most serious sense of responsibility. Only on two previous occasions has it fallen to my lot to address to medical students the very first words of exhortation at the opening of a new session ; once in Edinburgh, in 1856 ; and once in Glasgow, in this University, but not in these halls, in 1866. When we consider that sixteen years have elapsed since the last of these occasions, and that during this interval almost all of my then colleagues in the Medical Faculty have either been taken from us by death, or have passed into an honourable retirement, the very facts themselves seem to raise the question—Where shall we all be after another sixteen years ? And although I am assuredly not bound to answer this question, and have no personal misgivings leading me to despair of being permitted to labour for some years to come on your behalf, yet it cannot but be

present to my mind that this *may* be the last occasion for me, as it is the first for some of you, on which words like those I have it in my mind to speak may remain to be spoken between us. Let us therefore strive together to make the present occasion one which we may look back upon, if God will, as tending to confirm in us whatever of good, honest purpose we are conscious of having devoted to our work in the past; and not devoid, also, of some new inspirations or glimpses of insight as regards the unknown future that is before you, and equally before all of us, your teachers. I am sure that I speak the mind of all of them when, in welcoming you anew to these benches, we add the expression of an earnest desire or prayer, that we may also be enabled to perform our share in the duty aright; and that the good work done, and the friendly associations formed, during the Session of 1882-83 may be of such a nature as to be an abiding influence for good over all the years to come.

In considering the materials before me for a new Introductory Address, it is impossible to avoid looking back for a moment on these two former addresses. I would fain not absolutely repeat myself; and yet there is much of what falls to be spoken which could only be spoken again in similar, if not identical, words to those already used. It would not be altogether impossible, perhaps, to commit this justifiable plagiarism without a chance of detection, on the present occasion. For introductory addresses are, like the occasions that give rise to them, soon

forgotten, at least by all who are not immediately concerned in them. But I am not without hope that such reminiscences as cling to my own mind of these earlier addresses may be turned to account, not for the purpose of reproducing their ideas, but rather of inquiring how far the progress of the medical art has, in any degree, confirmed or controverted the impressions entertained of it by a teacher sixteen or twenty-six years ago. And with this view I intend, as soon as possible, perhaps in a few days, certainly some time between now and Christmas, to place at your disposal the whole of these addresses, including the present, so that you may at your leisure, if so minded, follow out with more full understanding and appreciation the few suggestions, imperfectly expressed as I fear they will be, called forth by the present occasion.

And while in this retrospective mood I am reminded that only the other day we had set before us, in the shape of a leader in *The Times*,<sup>1</sup> and in connection with the opening this month of the various medical schools in London, a singularly clear and luminous appreciation of the changes introduced into medical study and practice in England, as the consequence of the Medical Act of 1858; from which anonymous, but not unauthoritative, statement it may be admissible to borrow a few sentences as an illustration of our present position; keeping in view always that the writer of the article in question, well-informed and thoroughly impartial

<sup>1</sup> *Times* of October 3rd, 1882.



as regards his own division of the United Kingdom, has had England, and apparently England alone, in view, in describing the state of medical education before 1858, and the changes gradually effected, owing to the legislation of that year. Were one at liberty, indeed, to guess (for every one knows we can do no more) at the authorship of that particular article ; to see with the mind's eye the Vulcan that forged the thunderbolt of Jupiter on that particular morning, I should be disposed to say that, judging from internal evidence alone, the brain that guided the hand that wrote that particular article was also one of the most active of those recently at work in elaborating the Report of a Royal Commission appointed to inquire into the Medical Acts, with a view to their consolidation and amendment. If this be so, it gives, for us, an additional interest to the sentences of that article which I shall presently lay before you ; and although it is by no means my intention to make this address in any respect a political or controversial one, it is certainly a fact to be noted that an Englishman, presumably well acquainted with the facts, and speaking of England and for England alone in the columns of *The Times*, should employ the following expressions as regards the state of medical education a year or two before the passing of the Medical Act of 1858, and yet a year after my first Introductory Address to Medical Students in 1856 :—

“Five-and-twenty years ago, except in the case of the small number of men who graduated in medicine at Oxford or Cambridge with a view to consulting practice as physi-



cians, the education of a medical student commenced by an apprenticeship to a licentiate of the Apothecaries' Company, which was then the chief source of the medical qualifications of general practitioners. The apprenticeship was rendered necessary by the Act of 1815, from which the Company derived its powers, and it usually commenced at about the age of fourteen years, so as to break prematurely into school education. The first year of the apprenticeship was often spent in the work of a surgery boy, varied by the preparation of medicines, and by the attainment of some knowledge of their properties. The later years were devoted to learning the business of conducting a medical practice, the art of talking to patients, and so forth ; and, when the apprenticeship was concluded, a short term of hospital study formed a prelude to the single examination which, when passed successfully, permitted the candidate to work his will upon the sick under the protection of the law. Originally, the full term of five years apprenticeship was served in the house of the master ; but as the term of hospital study<sup>1</sup> was gradually extended from one year to nearly three, the two demands were found to consume an inordinate amount of time, and the last two years of apprenticeship were commonly remitted, and were suffered to form part of the period of

<sup>1</sup> To a reader unaccustomed to the phraseology here employed, it may be necessary to explain that "hospital study" throughout this quotation corresponds to what in Scotland would be called regular medical study within the curriculum, whether in hospital or not. In the London schools, which are all attached to hospitals, this is well understood, but not so in Scotland.

hospital study. Even then the total period of professional as distinguished from general education extended over about six years ; and, as the examination might be passed at the age of twenty-one, was usually commenced not later than fifteen."

I interrupt the quotation at this point simply to say that one has to go back a long way in the history of medical education in Scotland to find a state of matters at all resembling the one here described. We had our errors and deficiencies, no doubt, and to some of them I shall allude more or less distinctly before I have done ; but at no time within my recollection, nor, I think, within the recollection of those who preceded me, and whom I remember as my own instructors, was it even possible in Scotland to mistake a "surgery boy" of fourteen, prematurely withdrawn from school in order to manufacture pills and potions, and run errands, and make himself generally useful in a "shop" where he was under indentures to an "apothecary," for a regular student of medicine. To whatever extent the apprenticeship system held its ground in Scotland twenty-five or even fifty years ago (and far be it from me to say that in the hands of such men as Abercrombie, and others like him, it was not a system capable of much good) it was always controlled by a regular academic discipline, emanating mainly from the Universities, but largely reinforced, I am bound to say, by the co-ordinate influence, and often rivalry, of some of the corporations in building up what is now called the medical curriculum. In Scotland, at the period

here referred to, a medical student, so-called, was rarely less than seventeen, or, at the very earliest, sixteen years of age ; and he was bound at the very outset to constitute an "*Annus Medicus*," i.e., to engage in an amount and kind of real study which effectually precluded the possibility of his being allowed to run wild as a "surgery boy," such as is alluded to in the *Times*' article ; a type from which the "Bob Sawyer," and "Ben Allen" of Dickens' well-known story was only a too natural outgrowth. I venture to claim for the Scottish medical student of twenty-five years ago, even while admitting many deficiencies in his education both general and professional, that he was (saving a few sad exceptions) for the most part not only bound over to learn, but really in earnest in learning, the scientific as well as the practical work of his profession ; that he was not devoting days or years which should have been occupied by ordinary school training, to "the preparation of medicines, and the attainment" (by chance) "of some knowledge of their properties ;" but that he was, as I hope and believe you are, seriously impressed with the need of really scientific training as a foundation, and actually carrying out such training in anatomy and chemistry, even during his first year. Moreover, it lies strictly within my personal experience in 1856, when I had already taught several classes of Practice of Medicine, some of them numbering more than 120, to declare that the type of medical student existing at that time in Scotland was one which it was quite easy and natural for me to address as an assembly, not of undisciplined schoolboys out

of school, but as “gentlemen” preparing, not without the solemnity and gravity proper to men, for the great business of life. I will add that this has been my uniform experience of medical students, as a class, from first to last; and I appeal to the words of both my introductory addresses, in proof of the fact. I affirm that it would have been practically impossible to use the words of these two addresses, seriously and sincerely, to a body of men in whom the “Bob Sawyer” element formed any considerable intermixture; and I claim for our Scottish system of University and other regular medical education whatever credit may accrue to it from that fact.

I now return to the quotation from *The Times*; but what remains of it, though most important to us, is very short:—

“The Medical Act of 1858 introduced changes by which apprenticeship was abolished and the hospital course extended to four years, so that up to the age of seventeen school education might be continued. In order that the opportunity thus given might not be neglected, the student was required to pass an examination in general knowledge before he was permitted to commence his hospital career, and two professional examinations were instituted in place of one. The general result of the change was to occasion a marked advance in the intellectual status of students and of young practitioners. They lost, it is true, the familiarity with the management of a practice which apprenticeship was calculated to afford, and they lost opportunities of seeing many common forms of disease which are hardly severe



enough to enter hospitals, but they gained more than an equivalent for these losses in their better education and their greater self-respect. They gained an advance in intellectual training which rendered them better able than their predecessors to grapple with the complicated problems so often presented by disease."

It thus appears that the changes introduced by the Medical Act of 1858 into English medical education were in a great measure those which had been in operation in Scotland long before, under the influence of our three teaching Universities, and the medical schools associated with them in Edinburgh, Glasgow, and Aberdeen. Not that I wish you to infer that our state was all that could be desired, or even all that, under more favourable conditions of medical legislation, it might have become. The Apothecaries' Company, which I by no means wish to disparage, inasmuch as it has honourably striven to fill a position left to it by the other corporations, and thus to maintain the organisation of the medical profession in England, long enjoyed a practical monopoly for its licentiates of most of the offices in that division of the kingdom which formed the usual introduction to general practice. The Royal College of Physicians during the same period long declined to admit, even as licentiates, any but the graduates of Oxford or Cambridge; thus aiming at a degree and kind of exclusiveness which effectually barred all possibility of its becoming the college of the medical profession. The Royal College of Surgeons, with a much more generally accessible, and therefore more popular, diploma,

confined its whole attention to anatomy and surgery, under the theory that the other branches of a complete medical education were the province of the sister college, or of the apothecaries. Hence the anomaly of the "double qualification" which distinguishes England from almost every civilised country in Europe, for it involves the still more serious anomaly of the "single," or, as it may justly be called, the *half*-qualification, in virtue of which a man may enter into practice capable of performing operations, but entirely ignorant of medicines, and the diseases requiring their use; or, *vice versa*, capable of dispensing medicines, but almost entirely ignorant of anatomy and of surgical operations; and in either case far too much of a mere craftsman, far too little of an educated professional man.

The Scottish Universities early perceived this anomaly and long before the Medical Act of 1858 was passed, a regular curriculum of study had been instituted which was unquestionably (though still defective in many points) far more complete than anything hitherto attainable in Great Britain as a qualification for general practice. Not only so, but by a preliminary training in what we should now call the elementary biological sciences, botany, natural history, chemistry, comparative anatomy, and physiology, the mind of the student was opened to more than merely utilitarian views of his profession; the "surgery-boy" type, to which I have already alluded, was effectually eliminated, and replaced by a far higher kind of professional culture, founded upon a broad and generous estimate of the utmost that was then



held possible between the ages of 17 and 21, to fit a man for the practice of every department of a profession which requires, and fully engages, all the energies of a well-disciplined intellect. It is true that in respect of what may be called scholastic training the Scottish graduates were often found deficient; the trifling modicum of Latin which, in my time, represented the whole of the non-professional culture required being a very poor substitute for the B.A. degree of Oxford and Cambridge, or any of the other insignia of the ideal academic man. True, also, that on the other side it was sometimes objected that the Scottish graduate in medicine was not sufficiently conversant with the details of compounding and dispensing powders, and pills, and mixtures, and above all draughts (at 2s. 6d. a piece) to be taken two, three, four, or five times a day; in other words, that he had not sufficiently mastered the technical details by which his neighbour, the English apothecary, was able to accomplish the great ideal of the developed "surgery-boy" type—the dispensing of immense quantities of "physic" in the most complicated prescriptions, to pass unquestioned down the willing throats of Her Majesty's lieges. But in spite of these two grave deficiencies, and perhaps many more in detail, of a more real character than either of them, the Scottish University medical graduate has struggled on, with every precedent and every national prejudice against him, to a position of great credit and influence in the sister kingdom; and what is far better than that, to a more and more elevated conception of his art, and the sciences on which it rests. The cause of

this gradual elevation of his ideal is that the Universities, which did not wait for the Medical Act of 1858 to make a beginning, were, nevertheless, fully prepared to advance with the times, and carry out as rapidly as possible all the improvements suggested by that Act and by the Medical Council which it created. A Royal Commission, appointed in 1858, in accordance with the Universities (Scotland) Act, enabled them greatly to improve their internal organisation, just at the time when the Medical Act was initiating the revolution in English medical education and practice to which I have already referred. And now we are able to cite the very words of another Royal Commission, to show that our labours have not been in vain. "We readily acknowledge," write the Commissioners on the Medical Acts in 1882, "all that the Scottish Universities have done for medical teaching and examination, and we should hesitate to make any recommendation which, in our belief, would interfere with their usefulness or prosperity. We do not propose to interfere in any way with their teaching, nor do we believe that students will cease to recognise the cheapness and excellence of their teaching." These, gentlemen, are not the words of Scotsmen, or of Scottish graduates; for on this Commission of eleven members there is only one Scottish M.A., who is also a Professor in Oxford, and one Scottish medical professor, who is also M.B. of the University of London; the others being a peer, a bishop, an eminent English judge, a distinguished statesman, an equally distinguished naturalist, and others quite removed from the least

suspicion of any but a dispassionate judgment upon the facts presented to them in evidence, so far as we, or you, are concerned.

The two addresses which I propose to reprint along with this one will, I trust, convey to you some idea of the direction and scope of these advances in medical education ; not perhaps, by any distinct and separate statement of them, but by the glimpses they afford of the aspirations, hopes, and fears on your behalf of one who has been associated with medical students, almost without interruption, since he was a student himself ; and this, not in the class-room alone, but in the hospital, and at the bedside of the sick, for nearly thirty years. This double relation to you as your teacher continued over so long a period, may perhaps be considered to give the weight which comes from experience to suggestions in themselves not otherwise remarkable or profound ; at all events you will, I have no doubt, receive them as tending to show how much the mind and heart of a University professor are put into his work ; and how much the labour of teaching is for all of us lightened by the secure conviction that we possess your sympathy in all honest efforts to raise the work to a higher level. I am also glad to be able to tell you, and especially the juniors among you, that the testimony of all my colleagues goes to show that an increasingly high standard is being attained, gradually, almost from year to year ; and that in particular, the studies of the first year in anatomy, biology, and chemistry, show, to a very marked degree, increasing thoroughness. As I attach

the greatest possible importance to these studies, not only in respect of their actual details of fact, but still more as a training of the mind into the paths of observation and reasoned experiment, which lie at the very root of all safe and sound medical education, let me press upon you the importance of continuous diligence and zeal at this, the very commencement of your studies. Be assured that the labour of acquiring even what is commonly called *practical* information and skill in your profession will be greatly lightened, and your success greatly aided, by application to what is, and must ever be, the only foundation of a medical art that reaches beyond the merest empiricism. And now that all these departments may, according to the arrangements of this, and I believe all the other Scottish Universities, be studied in the laboratory as well as in the class-room, you may be assured that all the benefits which, in the first of these addresses, I ventured to anticipate for the development of practical methods of teaching, will be yours. It is, indeed, the increase of these methods in every department of our work that is mainly characteristic of these latter years of our Scottish University medical education. New buildings, new arrangements, new apparatus, new instruments of research are everywhere found necessary, not only to convey the old truths, but to interrogate nature directly as to what is, and what is not, truth. And this *habit of mind*, which is now-a-days not less than essential for success in every medical inquiry, can never be so easily and pleasantly acquired as in the first year of your



studentship, in the fascinating pursuit of biological research, whether in the animal or the vegetable kingdom. "Don't think, but try," said that mighty man of biological science, John Hunter; not that he meant to discourage thought or intellectual activity, for his own was of the most unresting character; but that in his opinion all intellectual energy should resolve itself into active work, in the way of experiment and observation. This habit, so different from that of the mere literary student, finding his inspiration and materials alike in the knowledge that is got from books, must be acquired as completely as possible before you come to engage in clinical studies, for it is only to a limited extent that we can, in these, afford you the means of acquiring it. How are we to teach you effectually the fleeting phenomena of disease, if you have not for yourselves investigated the corresponding phenomena of health? How instruct you either in the one or the other to any purpose unless you have systematically cultivated your own faculties of observation and experiment by active personal research?

In the second of the Introductory Addresses to which I have referred I used these words in characterising the existing state of the science and art of medicine:—"The art of medicine is at this moment in a peculiar position. The day of *orthodoxies* is over; the day of *real science* is only just dawning." It is worth while to return to these words for a moment, were it for no other reason than to inquire if the dawn has been at all brightening into day

since they were written. The sixteen years since these words were written have been years of immense activity in research, and very much of what has been done in them tends, at least, to fulfil the promise of a medical art of the future founded not on mere hypothesis, still less on dogmatic statements fortified by authority, but on accurate, continuous, and patient demonstrations of fact. In the first place, the art of diagnosis is constantly being improved by the introduction of new methods ; and the basis of all these methods consists in this, that diseases hitherto quite obscure, or called only by conventional names corresponding to their most obvious symptoms, are being daily defined and rendered into much more exact conceptions in the light of an improved physiology and pathology, resting upon observation and experiment ; so that what were formerly mere ancient names, surrounded by a halo of antiquity and traditional learning and skill, are now recognised symbols guiding the mind to well-understood *lesions*, as of the brain, spinal cord, heart, arteries, lungs, organs of special sense, and other well-defined points of the living economy, where, in many instances, the presence of the change, or lesion, can be actually demonstrated by such novel instruments as the sphygmograph and cardiograph, laryngoscope, ophthalmoscope, &c. I mention these newer instruments of precision, as they have been justly called, without prejudice to the much older and more established means which are now in the hands of every practitioner—the stethoscope, microscope, thermometer, and simple applica-



tions of chemical analysis—all of them employed in accordance with modern pathological investigations of a far more exact kind than any known to those great and wise men, from Hippocrates and Galen downwards to Hoffmann and Boerhaave, from whom the art of medicine derives, or derived until the present century, the greater part of its current nomenclature of diseases. This great progress in the direction of realism in diagnosis is apparently quite boundless; for no one can tell, nay, no one can even conceive, how far the progress of a very accurate physiology and pathology, based upon physical and experimental science, may lead us in the years to come; any more than any one could in these latter years, by mere inspiration or study, have anticipated the splendid researches of Pasteur, the triumphs of antiseptic surgery, or the discovery of Koch's tubercle-bacillus.

The mention of these splendid achievements, mainly of the last twenty years, and the last of them only of yesterday (as it were) recalls the fact that it is not only, perhaps not even chiefly, through the perfection of diagnosis, that the medicine of to-day is advancing from dawn into daylight. The enormous labours, the multiplied and varied observations and experiments, that have been bestowed upon these modern researches, in the genuine spirit of exact physical investigation, shows that the progress even of diagnosis, and much more of the prevention and treatment of disease, is coming to depend to a greater extent than ever before, upon that discipline of the mind which is to be found only among

the consummate masters of physical science. Every day and every year removes us further from the period when it is possible merely to make chance hits in therapeutics, and so, by an individual happy thought, or particular prescription or nostrum, to compete with those who are investigating cautiously and experimentally the results of remedies in disease. The thorough investigation of remedies, in their action both on the healthy and diseased organisation, is proceeding at a rate that seems, I confess, sometimes to be almost too rapid for security, but which has resulted, and no doubt will yet result, in achievements not less remarkable than the advances in diagnosis. And here let me give in my adhesion, in passing, to every word of the admirable address delivered the other day to the students of the Veterinary School by my colleague, Professor Cleland.<sup>1</sup> Like him, I am not personally engaged in experiments on living animals, and have no reason to expect that I shall soon, or perhaps ever, be so engaged. But I hold it to be all the more on this account necessary to protest against a law under which neither the invaluable experiments of Pasteur on the bacillus of anthrax, nor those of Koch on tubercle, could legally have been performed in this country without repeated special applications to the Secretary of State, which might with great probability have been refused, or unreasonably delayed. Punish cruelty by all means, and repress it by restrictive enactments, provided you can devise such enactments as will strike impartially at the cruelties of

<sup>1</sup> *Glasgow Medical Journal*, November, 1882.

science and of sport ; but for a Parliament which tolerates, or even encourages the latter to single out men of science, some of them the most distinguished benefactors both of mankind and of the animal creation, and to place them under ban, forbidding them the freedom of action that is conceded to all other men until they are proved to have done amiss, is to my mind one of the most monstrous and inconsistent, if not hypocritical, positions that any legislature could assume.

The rapid progress of sanitary and preventive medicine during the last twenty-five years is a subject on which I might well detain you, were it not that I feel that this address has already run to a length sufficient for its purpose. Nor is it necessary, now-a-days, to draw special attention to this point. For the progress here has not been from dawn, but from almost absolute darkness into daylight. Every newspaper, every monthly magazine teems with the popularised results of sanitary investigation. He that runs may read. And nowhere less than in Glasgow are we likely to be allowed to forget the importance of this line of investigation, or the many admirable results that have been brought to light by our excellent medical officer, Dr. Russell. The danger rather is, in my opinion, that feeling ourselves so well served, and at the same time so well represented in him, the medical profession at large will cease to interest itself in details which can be so easily handed over to a large and well organised staff of public officers. This, I think, would be a great evil for us, not less than for the public. For pre-

ventive medicine, or the scientific study of the causes of disease with a view to their removal, is an integral part of the art of medicine in general, and cannot be withdrawn from the consideration of its professors without great injury to their function as healers. For these reasons, which I have always insisted upon in detail at every fitting opportunity in my own course of practice of medicine, I should be sorry to see the preventive medical service, or, as it is called, the *sanitary* work of the medical profession, too completely specialised, and thus separated altogether from the rôle of private practitioner, as has been too much the tendency of late years. To you, as students, I would strongly recommend not to lose sight of either aspect of your future duties. Having acted as a public health officer for nearly 10 years previous to 1872, I am able to speak from personal conviction of the valuable effect of such a career in educating the mind towards the recognition of some of the highest duties of the practitioners in the ordinary sense. And this education I shall hope to convey to you in principle, even if I shall leave to others (as must needs be) the development in your instruction of the daily increasing details which form the proper subject of a distinct sanitary course.

Gentlemen, I have done. All that remains for me is to wish you, on behalf of my colleagues and myself, a prosperous, an animated, and a successful session. That will not be wanting, if you and we together approach our work in the right spirit. Be in earnest. Be diligent. Be modest and truthful. Help us, as we desire to help you, by mutual



sympathy in our joint labours. Finally, *ora et labora*. Look for the blessing from on high. And if modern science seems, at times, to wean your minds away from God, look again, and look further and yet nearer, till in the reign of law you can perceive a truly divine order ; in nature a living force behind nature ; in the mystery of your own will the faint image of a higher will than your own, neither less nor more mysterious in its essence ; in the endless descent of species, whether by evolution or otherwise, the infinitely multiplied reflection of a relationship to Him, who, while he is the Father of our spirits, and the framer of our bodies, is also “ nigh to every one of us,” the Father of all the families of the earth, from everlasting to everlasting.





## INTRODUCTORY ADDRESS

DELIVERED IN THE EXTRA-ACADEMICAL MEDICAL SCHOOL OF  
EDINBURGH, TO THE STUDENTS OF THE SESSION 1855-56.

It has fallen to my lot this year, Gentlemen, to address to you some words of welcome, of encouragement, and of advice. It is impossible to look round on this assemblage, to remark the old familiar faces, and the many new and eager ones, without the wish to say something worthy of the occasion that has called us together. If I feel, as I do feel, that personally I am but little fitted for the task intrusted to me, I am on the other hand strengthened by the knowledge that it is a duty which I have to perform; and that simplicity, directness, and the strong desire of doing good, will stand with you in the place of oratorical cunning.

The duty which I have to perform is partly towards you, and partly towards my colleagues, whom I see around me. On their part I have to give expression to those wishes, those hopes, and those fears concerning you, which

must ever be present to the mind of honest teachers. On the other hand, I have to impress upon you that you are received here, not into the society of mere lecturers, but of men anxious and watchful, devoted to your welfare, sympathising with your aspirations, desirous to remove your difficulties, and not deficient in kindly regard even for your weaknesses. If I can succeed in entangling you thus early within that net of intelligent sympathies which the study of medicine weaves around all its worthy professors, I shall have brought about the highest result at which I aim, and shall have discharged my duty on this occasion.

A word of welcome, then, first of all. Some of you sit on these benches for the first time; and which of us all does not well remember his first appearance in a medical class-room? Which of you will not join me in saying to the junior student, welcome? He will have, no doubt, his misgivings. The strangeness of the scene, the separation from friendly and familiar faces, may inspire a feeling chequered with something like sadness. Yet it may not be amiss to remind you that life has other emotions, other associations in store for you; not inconsistent with those you have left, but, on the contrary, yielding to them a higher zest; lending to the joys and sorrows of the heart and home that depth and strength and steadiness which arises from their being set in a firm and manly character. You have now to begin the battle of life, to take your places in the world as men of action, or at least to prepare for this great ordeal. And, as the crusader journeyed forth into distant lands,

postponing for a season the enjoyments of life and the smiles of his lady-love, till he had done deeds of valour against the Pagan foe, so you, too, seek the class-room and the hospital with no idle or careless intent, but under a solemn vow to show those who have followed you thither with their affections and their prayers, what manner of men you are. And to this ordeal we bid you welcome, not fearing the result.

So much for the beginner. To those of you who have been already initiated into medical studies, and especially those to whom this class-room is a familiar place, we trust that not many words are necessary in the way of welcome. I, for one, doubt not that the return to Edinburgh, to the toils and anxieties of the session, will carry with it some pleasing associations; something of friendships broken and to be renewed; something of work interrupted and to be resumed. The man for whom there waits no kindly remembrance of these things ought, perhaps, to consider well whether he has not mistaken his calling. With the great majority of you, I am satisfied, the return to work is neither an indifferent nor a painful matter; and we, your teachers, desire to join in the congratulations proper to the occasion; bidding you heartily welcome in the same spirit, grave and earnest, yet hopeful and joyous, in which, we trust, you have already saluted the scenes and the companions of your labours.

A great part of the instruction which you have to receive

from your teachers in this school will be conveyed in the form of lectures. Now, lecturing as a means of instruction has its advantages and its disadvantages. The advantages are, that it secures for the teacher a fitting position for the systematic development of his ideas before a large class; that it gives ready opportunities for the exhibition and explanation of specimens, dissections, experiments, analytical tables, &c., and that it does not fritter away the valuable time of the able and attentive student by compelling him to follow the painful efforts of the less gifted or less thoughtful disciple. Against these manifest advantages have to be set grave disadvantages and dangers. Such are the evils which may arise from the want of a proper understanding between the lecturer and the student; which, in the case of the *mere* lecturer, may be pronounced irremediable. Slovenly teaching on the one hand, careless hearing on the other, are sure to follow such misunderstanding. It is a grave and perhaps ruinous injury to you if you fail at the outset to follow your teacher with a certain degree of satisfaction; for the habit of inattention, thus implanted, may never be eradicated. And the misfortune to him is not small; for few men have the power of detecting and correcting their own faults; and unless some other sphere than the lecture-room be accorded to the teacher, the habit of studying the peculiarities, and adapting himself to the wants of his pupils, will in all probability never be acquired.

Under these circumstances, I believe I shall be only enforcing the convictions of every one of my colleagues, if I



say that a more familiar intercourse with you, and especially with the juniors among you, than the lecture, properly so called, permits, is highly desirable as an aid to the instruction there intended to be conveyed. I allude, in the first instance, to the system of *vivâ-voce* examinations, or conversations, as they might perhaps be called, which is now in almost universal use in this school, in addition to the formal lecture. I value this system very highly myself, and I am quite sure that it is, not perhaps indispensable, but, to say the least, extremely useful, both to the student and the teacher. It is therefore always with regret that I observe students detained, whether by want of time, diffidence, or other causes, from joining in these conversations. Let me assure you that it is by cultivating from the first the habit of taking part in them, and in the other exercises of the class, that you will most easily qualify yourselves for passing that final ordeal which has been established as the test of your proficiency; and which too many of you, when the time approaches, view with such vague and exaggerated terror. It is not the experienced swimmer that dreads the water. But if you will save your skin at the first, you must expect to be rather unpleasantly affected, when at the end of your studies you go shivering and naked into that very cold bath which is prepared for you in the college over the way. Be therefore wise in time. Do not trust to the "grinder" in your last session; but accustom yourselves to carry out, all through your studies, the eminently tonic and invigorating habit of ascertaining your own progress, as compared with

that of others and with the expectations of your teacher. To recur to my former illustration, you may find the first plunge require an effort, during this dull November weather ; but ere long you will go in like a water-dog, and come out steaming and glowing, and like a giant refreshed after slumber.

But I have taken a low view of the matter in recommending class-examinations to you as a means of preparation for your final trials as students. They are far more than this. They tend to fix and confirm your knowledge, to give you opportunities of correcting and arranging it, and, above all, to make sure that it is forthcoming when wanted. They force you into personal communication with others ; they form the best of all introductions to your teacher and to your fellow-students ; and they lead to many pleasant and profitable associations, which may be followed up with advantage elsewhere than in the lecture-room. Depend upon it, it is not by sitting in the corner of a room, and being preached at for six hours a-day, that you will make yourselves masters even of the doctrine, much less of the practice, of modern medicine. Still less will you fit yourselves in this way for the great business of the world. You should bear in mind throughout your studies that the spirit of medicine is eminently social ; that its duties have to be performed *among men*, and that the habit of easy, unrestrained intercourse with others is among the first of the lessons you have to learn. This habit you will easily acquire, if you avail yourselves of every opportunity to make your studies



the basis of such intercourse ; if, instead of converting yourselves into magazines of solitary erudition, you use your endeavours to interest all around you among your fellow-students in your common pursuits. By attendance on the familiar class-examinations you will be led to make your studies the subject of conversation among yourselves, as well as with your teachers. Some of you will be more, some less, advanced in study ; some will be more possessed of one, some of another kind of knowledge ; but you will all sympathise in each others' difficulties, and I trust you will all be generous enough to be interested in each others' success in overcoming them. Sure I am that the more you rub shoulders in this way the better for you all. The care which you give to each others' progress is, like mercy, "twice blessed : it blesseth him that gives and him that takes." No student can explain the simplest fact in medicine to his fellow without being led to inquire into something which he has formerly overlooked, or without deriving an increased assurance of his own completeness and readiness of information. And when you consider how impossible it is for the teacher to exhaust every subject that he touches, in a science so wide and so incomplete as medicine, you will readily apprehend that the field for legitimate discussion and conversation outside the lecture-room is one which may be cultivated with the greatest advantage. To this sort of prolific and eminently useful intercourse you are directly led by class-examinations properly pursued. The lecture sows seed, which may or may not fructify, according

to the disposition of the soil to receive it. But the examination ploughs deep into the soil, breaks the clod, turns it over and over, and finally, when the good seed has sprung, uproots the weeds which choke its growth, and exclude both light and air from the tender plant. I do not say that it is impossible for a blade of corn to spring up without any of these processes ; but without them it is impossible to have an abundant and goodly crop. And assuredly, to the mass of students, examination, or some process whereby the living contact of mind with mind is secured, is not a luxury, but a necessity.

A very important feature in modern medical education is its practical character. This feature is not, perhaps, recognised so fully in your authorised curricula as it ought to be ; indeed, in this respect, our practice is in advance of our regulations. I desire, therefore, to say a few words in commendation of what I believe to be a sound principle. By practical instruction I do not mean, as you might perhaps suppose, instruction in the treatment of diseases only ; but instruction, whatever be its subject, conveyed in such a form as to bring the student face to face with the facts of nature as well as with his teacher and his books. Now lectures are by no means to be despised ; and neither, most undoubtedly, are books, and especially good books. “A good book,” says Milton, in that most magnificent of all his prose writings, the *Speech for the Liberty of Unlicensed Printing*—“A good book is the precious lifeblood of a master

spirit, embalmed and treasured up on purpose to a life beyond life." Such books exist in our science, though in this printing and publishing age they are few and far between. Moreover, it is only in the very rarest instances that books of this highest and best quality can be recommended as being also good elementary works for the use of the student. The greater number of those which we shall be obliged to place in your hands are, after all, mere useful compilations, addressed to the memory far more than to the higher faculties, and embodying nothing but the barest summaries of facts and doctrines which every hour is placing in new combinations, or even removing altogether to make room for new ones. Such books may instruct, but can never inspire you. I do not mean to disparage them in saying so ; for if they faithfully fulfil even the minor office,—if they prove what they profess to be, good dictionaries and works of reference, you will have cause to be grateful for the possession of them. But as no one, except perhaps a very learned philologist, can learn a language by poring over a dictionary and grammar, so I do not expect that you will become masters in science by any amount of "reading up" in a text-book. Facts, experiments, observations—truth, in a word, as gathered from the living springs of nature herself—these are what the soul of man thirsts after with a never-dying thirst. Books are the faithful and necessary interpreters—the slaves of the lamp, ever at hand when wanted, silently and unobtrusively doing the drudgery of scientific instruction, and yielding up the endless riches of

the past to the hand of their master. But he who would use them aright must himself have walked in the enchanted garden of nature; he must have looked on her ever-open volume, to which all others are but the key.

Our modern medical instruction has become fully awake to the fact, that lecturing and listening to lectures, even with the aid which this process derives from examination, is not all-sufficient. It is a great step gained. Time was when this great truth was not recognised in medical discipline—when, as yet, the hospital, the dissecting-room, the laboratory, the dispensary, were not a part of the generally-admitted apparatus of medical education. The business of the student in those days was simple; and that man generally succeeded best, other things being equal, who had the most rapid hand at taking notes, the best memory for mastering long names. *Furare in verba magistri*—that was almost necessarily the rule; and medical schools, as well as the greater world of medicine without the doors of the Universities, were seen dividing themselves into parties upon grounds with which nature and fact had little or nothing to do—where the whole question at issue was an abstraction, and the whole object of the quarrel was a victory for this or that professor over this or that other. No doubt this is a caricature of the good old times; for, notwithstanding grave faults in the system, sensible men were found to overleap its iron barriers, and become good teachers, good learners, good practitioners in spite of all. But the tendency of the lecturing system, carried on to the ex-



clusion of others, was undoubtedly what I have told you ; and I have, in fact, given you no very exaggerated picture of many medical disputes in the days of our forefathers. Perhaps there may be found, in a few of those which even now agitate us, enough of resemblance to my rough sketch to enable you to recognise the evil when you meet with it. But, on the whole, times are now greatly changed. Practical instruction is everywhere admitted into your curricula as an indispensable adjunct to lecturing ; and those are everywhere admitted to be the best teachers who are able most judiciously and effectively to combine the two, and to feed the uninformed mind, not with vague general doctrines and intangible abstractions, but with the actual lessons of nature and the ideas that spring directly from their contemplation.

The extra-academical school of Edinburgh has in this respect some very important and special privileges which it becomes you duly to appreciate, and which I will take the liberty of pointing out. In the hospital, for instance, the seat of practical instruction in the more limited sense of the term, you have several special and general clinics in the medical or physicians' department, and these might be even increased in number with advantage ; perhaps if we can get an additional hour for hospital teaching, as is the earnest desire of my colleagues and myself, they may be so. In the surgical department you have a general and two special clinics. You have also that most important department of Morbid Anatomy, the basis of almost all that is exact



and sure in modern pathology ; to it much time must be given, although as yet none of the Examining Boards have formally required you to do so. How are you to do justice to all these means of instruction unless you take care to begin sufficiently early? It is often said that "walking the hospitals" is of no use until some branches of systematic instruction have been thoroughly learned. I am of a very different opinion. If there is one thing I feel more secure in saying to you than another, it is that you cannot enter the hospital too soon, or leave it too late in the course of your studies. You have little enough time for what you have to do there. I do not mean that you can or that you ought to attend clinical lectures during your first year, although I have often thought that a special series of clinical instructions for the beginner might be organised with advantage ; and that much of that education of the senses which in the medical wards demands so much time and trouble, and which at present we are obliged to crowd into the last years of study in a far too hurried manner, might be learned at a much earlier period. It is at least as easy to learn the characters of the pulse, the external characteristics of disease, and even the principal phenomena of instrumental diagnosis dissevered from their interpretation, as it is to understand the shape of a bone, the relations and insertion of a muscle, the nature of a precipitate, or the laws of atomic equivalents. And if you knew how much your future study would be lightened by this foundation, how much would become possible that is now impossible to you,

I am quite sure that you would spontaneously accord this additional year of clinical study in the medical department, and that the studies I allude to might be made at least as attractive and useful to the student in his first year as at any subsequent period.

In Anatomy and in Chemistry I need hardly say that the practical departments, under the same teachers as the theoretical, ought to absorb a large share of your attention. How much, I may safely leave it to those gentlemen to tell you.

In Operative Surgery we have always classes during the summer, wherein you have an opportunity of learning what those who go directly into general practice come at once to feel the need of, and what can never be learned, except at the expense of human suffering and perhaps life, elsewhere than in some such class as this.

In Practical Midwifery we have also abundant opportunities; and, owing mainly to the exertions of one of my colleagues, this most important department has lately been added to the curriculum of the College of Surgeons, as it must soon be, one would think, to that of every other licensing body.

Finally, we have now, I am happy to say, through the assistance of another colleague, succeeded in connecting the course of Medical Jurisprudence with a practical department which is capable of being made of the greatest service to you.

These remarks will serve to show the extent to which the

great idea of practical instruction (or instruction carried directly from nature to the ears, and eyes, and mind of the pupil) enters into the plan of this Medical School. I can say for myself, that I feel as if much of my usefulness to you, such as it is, would be lost, should any capricious turn of fortune deprive me of the means of meeting you at the bedside of the sick, where we are all students, as well as in the lecture-room, where I teach and you learn. I am not without hope that the time may one day arrive, when every teacher of a systematic branch in this school may be able to plant his foot firmly down on the practical counterpart of his systematic course; to derive, like Antæus of old, new strength in wrestling with its difficulties from the contact with fact and reality. Nothing is more treacherous or more seductive than the position of the teacher, who, with a large class before him, gives himself up to dogmatise. For a while he may resist the evil influences of his position; but, unless his nature is more than human, he is apt, more and more every day, to put formulas in place of things, hearsay in place of fact, fancies in place of reasoning, plausible theories in place of the results of honest investigation. But take the teacher of natural science to nature herself,—place him with an intelligent and critical audience in contact with her ever-consistent revelations,—and you burst whatever webs of sophistry he may have unwittingly woven around his own ideas. The mere lecturer—the dogmatist, pre-occupied with his opinion, and contemptuous of yours—is gone; in place of him you have a student like yourselves,

candid, humble, inquiring, and truth-speaking, so far as it is in him to be. Hence we trust the botanist most in his garden, and the geologist most on the hill-side, and the comparative anatomist most in his museum; and for the same reason we ought to see that the great departments of medical science are taught after this truly useful manner—giving to every systematic and doctrinal teacher, as far as possible, his practical field of instruction; to the anatomist his dissecting-room, to the chemist his laboratory, to the physiologist and the pathologist, to the teachers of medicine and surgery respectively, the fullest command of all appropriate means of practical education.

The only way to obtain the full benefit of practical instruction is to begin early. Do not wait until you are half through your curriculum, for instance, before you enter the hospital. Take my advice, and go at once in search of a perpetual ticket. I don't think it of so much importance whether you begin in the medical or in the surgical department; but go there, even during your first year, if not regularly, at least very frequently. Learn to use your eyes and your ears; learn the habits and demeanour necessary for dealing with the sick; learn, in short, everything that you can learn at this stage of your progress. You will take twice as much interest in your other studies when you have seen, even dimly, to what they tend, as if you went to them without such preparation. And so with all the rest. I believe, myself (though I desire not to commit my colleagues on this point) that the best preparation for many of their



lectures would be a little practical knowledge of chemistry, of pharmacy, of anatomy—just so much, of course, as to clear the way; a little knowledge of the appearance of the bones, for instance, before attending lectures on the bones, and so on. It is not always easy to carry on your studies in this manner; but where you find the facilities ready to your hand, you should by no means neglect to use them. That is all which I feel I have a right to say upon a subject which is necessarily one of detail; and in regard to which each teacher must advise you in his own department.

And now let me say a few words as to the spirit in which you are to go about your work. That you should be instant and watchful for every opportunity of acquiring knowledge, is too evident to require much illustration. However long the time may be before you, I never yet found the student who, at the end of his curriculum, said that he had more than he required. Besides, nature is a coy mistress, and does not always show herself in the wished-for mood. You cannot always get your illustrative case when you want it; you cannot go into the hospital and dispensary and say, “show me this or that broken bone, this or that inflamed organ.” You must lie in wait for knowledge, and take events as they come; looking at the same thing many times over, with new information, new experience, more enlarged mind each time. The sooner, therefore, that you master the elements, the fewer will be the incidents which will pass by you unimproved. The lazy student, who bungles his anatomy the

first year, is thereby disqualified for much of his surgery the second ; if his chemistry has been neglected, the evil falls forward on the *materia medica*,—and so on. By the end of the third year he has sufficiently come to himself to be wandering about in a maze of confusion in the hospital, wondering when he will be able to see and understand things like his neighbours. The best thing that can happen to such a man is to be rejected at his examination, and to begin again ; or to stop altogether, and take to something else with more spirit and method. Do not, therefore, put off any portion of your studies to a more convenient season ; do everything thoroughly as you go along, and put the whole force of your mind into the work of to-day. Be systematically in your usual place at lecture ; and if unavoidably you miss anything there, make it up in reading as soon as possible, and do not make your absence a reason for not attending the examination, but rather for going there the more punctually. The habit of steady application is not only a good habit in that it promotes work, but also in that it permits of ease and rest, which are never so sweet as when they have been earned by honest, hard, good work. The student who has been at his classes and over his books all day long, will seldom, or at all events will not wisely, grudge himself the night's rest ; still less will he run the risk of being confounded with those who turn the night into the day, and, as a necessary consequence, the day into the night.

But you will need resources beyond the sphere of books

and lectures and hospitals. Your profession is one demanding a great deal of general mental culture ; it is, moreover, an eminently social profession ; and lastly, the body must be attended to, for it would be lamentable, while studying the very structure of that complex machine by which the work of your life is to be done, to allow it to fall into decay for want of proper tending. I do not hesitate to recommend that for these purposes you should make a clear break in your professional avocations on the Saturday afternoon. I was at a meeting the other night of the working men's half-holiday association ; and I fully coincided with the sentiments of some of the speakers, that we, who work by the brain instead of the hands, are entitled to the highly honourable designation of a *working* class. Let us, then, have our Saturday half-holiday too, and from one, or at least two o'clock on Saturday afternoon till nine o'clock on Monday morning, let us "throw physic to the dogs," and give the time to exercise, to amusement, to society, and to worship.

Let me conclude my advice to you on this occasion by exhorting you to pursue the profession you have chosen, in an earnest, grave, decorous, and, above all, a religious spirit. You are not to regard the science and art of healing as a mere means of earning daily bread—though that, in itself, is no real degradation to any science or any art ; nor yet merely as an intellectual pursuit, nor as a means of moral culture, nor as an instrument of practical beneficence ;

but over and above, and including all these considerations, you are to place the conviction that the work of your lives is a work imposed on you by God—a *calling* in the real sense of the term—one which requires of you no less than the devotion of your best energies, as, indeed, it presents to you the widest of fields for their development. The spirit which I now recommend to you may be expressed in the words of St. Paul as applied to the Christian calling—"Take heed that ye walk worthy of the vocation wherewith ye are called." I will only suggest one or two considerations which should induce you to take this matter seriously to heart.

The first is, that there is a special sacredness in the art of medicine itself. You will ere long be placed in the chambers of the sick and dying. Your life will be spent, as it were, in sight of the very gates of eternity; and amid the most affecting and confidential intercourse with your frail fellow-mortals, you will be charged to watch over the flickering flame of life. Can you be careless whence comes that life, whither it goes, and to what purpose it is devoted? The very instruments with which you work—sharp knives, sharper and more deadly medicines—are suggestive of an awful responsibility. Will you use these instruments with your own reputation and your own glory solely in view? Or will you use them reverently, as you shall answer to God, who gave them to be for good or for evil, for a blessing or for a curse, according as you shall direct them? From your lips, one little word, winged and irrevocable, may



carry healing and comfort, or inflict torture worse than death. Will you and dare you speak that word without a thought of one whose ears are always open, and to whom, as the Great Physician, you must account for it, as well as for every word and every act of your professional career? No; your art is sacred; you cannot think it otherwise.

But put aside for a moment the sacredness of medicine as it deals with your fellow-men. Let us suppose that you are studying medical science without any immediate view to the responsibilities and the cares of practice; that the pure love of knowledge, and the desire of intellectual and moral gratification are all the rewards you seek. Still, I say, think of the end. You have talents, means, opportunities of no common kind. To what purpose will you devote them? Many men have toiled that you may know; the science of two thousand years has unrolled her ample page before you, and you are "rich with the spoils of time." Where will you deposit your treasures? Will you bury them in the earth, or will you lay them up in heaven? Will you consider your knowledge and your powers as your own, or will you become the faithful stewards of Him to whom you owe them all? Will you seek chiefly wealth, fame, personal distinction, those luxuries of the body and of the mind? Or will you be content with little of these, so you can find the way to render your gifts available for man, and return your talent with increase to God who gave it? Is your study of medicine to be merely an innocent, or, at most, a less hurtful form of self-indulgence; or, is it to be the devo-

tion of a life to important objects, and the systematic pursuit of these objects through good report and evil report, for the good of man and to the glory of God? Are you to be the spoiled child of science, or the heroic and religious man, to whom science is but the armour for the battle of life? All depends on the spirit in which you begin ; and it is now that you have to make the choice of motives which may influence your whole life.

Science, fame, honour, riches—all these give a certain stimulus to exertion. Many discoveries and inventions, useful to humanity, as well as striking and beautiful in themselves, have sprung from the love of these. They are, therefore, not to be despised, and still less to be treated as adverse to the religious spirit. On the other hand, nothing can be more injurious and degrading to the practice of medicine, nothing more lamentable in the followers of our noble and truly humanising vocation, than that they should be wanting in that which can alone regulate and direct aright these comparatively selfish and ignoble impulses. I will do no more than hint at the shocking prostitution of our art which arises from the desire of wealth too exclusively pursued. A mercenary doctor, in whom the "*auri sacra fames*" has eaten out alike the human heart and the love of knowledge, is indeed a creature abhorred of God and man. Happily you will not be exposed during your studentship to this temptation ; and I trust that the spirit of the patient and disinterested scholar will prove a protection, in the earlier part of your career, against a vice which is rarely the

vice of the young, and perhaps still more rarely that of the young physician or surgeon than of most other members of the community. But you may require to be warned, and you cannot be too early warned, that the search for scientific truth itself, and still more the appetite for reputation and precedence in that search, is capable of intoxicating and preoccupying the mind to a dangerous and vicious degree ; capable of absorbing that native generosity of disposition which is rarely wanting in the well-educated youth ; capable of undermining the moral principle even in the firmest of characters ; of blasting the charities of life even in the mildest. I have seen some of the very ablest of our students display, in the mere struggle for college prizes, all the evidences of a selfish and unscrupulous nature ; and I have thought, with pain and humiliation, of the greater struggle which awaits such men in the world, when there will be almost nothing to check, and everything to encourage the virulence of animosity, and the meanness of jealous self-seeking. Surely, of all the infirmities of noble minds, the distempered and insatiable ambition of which I speak is one of the most lamentable. To how much offence, to how much real injury, to how much petty and humiliating irritation does it give rise ! How cruel and haughty is it in prosperity ! How abject and wretched in adversity ! How unjust to others ! How little satisfied with itself ! Truly the man who is beset by this absorbing and jealous passion will live to say with the preacher—"Vanity of vanities—all is vanity !" Nor will the most eminent qualities and the

most splendid success save him from this bitter conclusion.

I have brought before you this one form of vicious self-indulgence for the purpose of impressing upon you the truth which I wish to convey—that it is possible to fall very far short of your duties as men, even while you seem to yourselves to be straining every nerve towards distinction and success as students. The vice which I have held up to your aversion is one to which ill-regulated and ill-balanced, rather than sensual and degraded natures are prone. But no other vice, not even the worst of those “fleshly lusts that war against the soul,” marks more distinctly the absence, or the feeble and indistinct development, of the religious principle. You have, indeed, duties to perform to yourselves, and you err grievously if you steep your souls in the lethargy, and abandon your bodies to the destroying influence, of dissipation and sensual indulgence. You have, moreover, duties to perform to society, and you are lamentably wrong, if, through sloth or perverseness, or even thoughtless frivolity of disposition, you neglect them. But over and above these social and personal duties, comprehending them all, and therefore superior to them all, stands the great duty of *self-sacrifice*—of *devotion*, in the only genuine sense of that much abused word. For devotion is not a sentiment, or a creed, or a formality, as some would have it, but a deed—a practical recognition of the great Creator and Sovereign of all, by the life-long dedication to Him of that which is His. You are *devoted* or *devout*, which



means the same thing, if you are busy and studious ; but you must also be more anxious to study to a right end, than to reap a present reward in the praises of your fellow-students, or even of your teachers. You are *devoted*, if you preserve an unblemished reputation ; but you must also have been more desirous to be, than to seem, good ; otherwise your virtue is the virtue of the hypocrite, and such will be your reward. You are *devoted*, if you seek, by fair and honourable means, a distinguished place among your fellows ; but you must not only see that you deserve, before you attain, such a place ; you must also be sure that you look to distinction only as a means of greater good, a fulcrum for that moral lever by which you are to work on and on, through time and through eternity, the work that is given you to do.

Self-sacrifice—or rather self-devotion—is the mark of the religious character, as selfishness is the sure sign of the opposite. I trust I do not exceed my duty in this place by saying, that we look for the manifestation of a religious character, after this manner, in each of you. We do not inquire, and we care but little, in what form you clothe your religion, as a sentiment or as a system ; what creed you adopt, to what church you adhere. But to find you, or to make you, earnest men ; to keep you ever mindful, by precept and example, that your art is a business and not a mere pastime ; a God-given business too, and not a mere money-making machinery, an arena for intellectual gladiatorship : this we conceive to be no less our duty than teaching

you the details of the art itself. We may perform this duty feebly and inadequately; but a duty it is, and as such we recognise it. Do you, on your side, not fail to give your thoughts seriously and often to this religious aspect of your vocation: let the consideration of it preserve you from idleness, which is the waste of your time; from dissipation, which is the abuse of your body; from over-work, which is the ruin of your mind. You are the appointed keepers of these precious gifts of God; keep them well, that you may render a good account of them. Be not vain and self-confident, for this is to value yourselves above your work; nor abject and mean, for this is to degrade yourselves below it. Find out what you can do, and do it cheerfully and quickly; for the measure of your ability is also the measure of what is required of you. Seek distinction, not to rest upon it, but to strive beyond; the more honour, the more work; the greater the praise, the higher the task. Let your object be to prove your powers to yourselves, not to display them before others; so shall you be careless of unmerited praise or neglect, not through indifference, but because no one can take away the object for which you strive. It is a little matter that another man's work is better than yours; it is much, that your own be as good as you can make it.

If you study in this spirit, you will stand clear of all baser motives, so far as they are opposed to this; you will put away jealousy and evil-speaking, "malice and all uncharitableness;" you will be helpful and generous, modest

and truthful, careful of the reputation of others, not fearful or anxious about your own. And so may God send you this spirit, and help the good work, both with students and with teachers !

## INTRODUCTORY ADDRESS

DELIVERED IN THE UNIVERSITY OF GLASGOW, TO THE  
STUDENTS OF MEDICINE OF THE SESSION 1866-67.

IN the midst of many anxious and pressing duties of a strictly practical kind, I find myself called upon to deliver to you a few words of encouragement and of advice at the opening of our medical session. It is a pleasing duty, but at the same time no light responsibility. The time allowed me has been short; other engagements have been urgent, and, in some instances, more than usually disturbing in character. I will nevertheless attempt to fulfil as well as I can the requirements of my colleagues, and my duty to you as one of your Professors deputed to speak in the name of the rest.

### THE RELATION OF PROFESSOR AND STUDENT.

Is there any need that we should spend many words in giving you a formal welcome? Is there any need that we should exhort you in conventional phrases to order, discipline, obedience? My experience of students of medicine



is that the great majority of them press forward to their work in the class-room as to a joyful festival; that they instinctively welcome their teachers with the warm feeling of friends, and at the same time never fail to display towards their Professors the respect due to men anxiously devoted to the best interests of those under their charge. We have no feeling, therefore, in meeting you again in this place but one of sympathy with you in all your aspirations. You have come here on a serious mission—to prepare for the work of your lives, to devote all the powers of your minds to the acquisition of knowledge and experience which, at some future day, may be literally all-in-all to you as regards your position in society, your professional rank and success in life, and, what is of more importance than either of these, your value and usefulness to your fellow-men. We, on our part, are determined, God helping us, to do what we can to aid you in this great endeavour, by our sympathy, by our knowledge, by our counsel, by our practical experience—by the living contact, in short, of man with man, as well as by lectures, books, laboratories, hospitals, and all the usual machinery of teaching.

Such, then, is the view we take of the relation of Professor and Student. It is a strictly personal relation, which operates by example as well as by precept: not a mere delivery to you of our opinions in lectures, but at least an attempt, with more or less perfect means and appliances, to lead you into the great school of nature and fact, and there to inform your minds with those principles and methods of

inquiry that have made medical science what it is, and that are leading it on to unknown developments in the future. Medical teaching has, I trust, drifted away for ever, and for good, from the traditions of the old, dead, dry, formal *lecture*, in which opinions and prejudices were crystallised into what was called a *system*. What we give you now-a-days in lectures is thus far systematic, indeed, that it is not wholly disjointed, disarranged, and chaotic ; but in no other sense is it intended to fetter your minds with the weight of dead opinions, but rather to prompt and stir them up into the living energy and power that comes of personal investigation. And for this purpose you have hospitals, dissecting rooms, chemical laboratories, and all the great realm of natural science, placed at your disposal, with such assistance as we can offer you in your inquiries.

THE RECENTLY APPOINTED PROFESSORS DRs. YOUNG AND  
COWAN.

In connection with this view of medical teaching, let me introduce to you one who will have to take a great part henceforth in the cultivation of your minds—the most recently appointed of the Professors in the Medical Faculty, Dr. John Young, Professor of Natural History in this University. I commend him to your respectful consideration, not only as a man of academic culture, of refined and various tastes, and of friendly and sympathetic character, but also as an enthusiastic votary of Nature in all her

boundless wealth of illustration. Bred a medical man, and, as such, able to understand and sympathise with your professional aspirations—thoroughly versed in comparative anatomy, and in all its relations to the human structure and functions, Dr. Young has seen fit to abandon the practice of medicine in favour of those pursuits in which a genuine passion, once acquired, generally becomes the devotion of a life. A thorough working geologist, who has been through most of the glens, and up many of the hills of Scotland, hammer in hand—a zoologist, also, in the most practical sense—Dr. Young is not the man to let your faculties of observation rust in the class-room. I have taken a wrong estimate of him altogether if he does not speedily light up your souls with some of that fine enthusiasm that possesses his own for the open-air study of the book of God's own writing. To read the history of the world in her own archives of rock, and sand, and clay; to decipher the inscriptions of the "thick-ribbed ice" in our Highland valleys; to trace the endless workings of that subtle craftsman, water, from age to age in ocean caverns, riven rocks, gravel beds, and in the quiet resting-places of shells and fossil fishes buried myriads on myriads of ages ago; to interrogate the existing forms of animated nature for instruction as to the forms of the past ages of the world; to trace these forms, both old and new, through all the gradations of life, so as to read off, as it were in a connected narrative, the plan and scheme of the Creator, and to appreciate at once its grand simplicity and its infinite complexity of

detail; such are the studies that you will have to pursue with Dr. Young, and I can truly say that I envy you the privilege. I hope and trust he will not make you all such naturalists as himself, and thereby impoverish the medical profession; but I feel assured that he will largely inoculate you with the love of his own pursuits, and to the extent to which he succeeds in this you will be better qualified for the practice of medicine, of which a large part consists in the careful education of the observing faculty.

There is yet another introduction which falls to be made on this occasion, but not of one personally unknown in Glasgow or to Glasgow students of medicine. My good friend and colleague, Professor John Cowan, assumes this day the active duties of the Chair of *Materia Medica*. A professor himself, and the son of a professor; a distinguished alumnus of Glasgow University; a distinguished teacher—first of Medical Jurisprudence, afterwards of Practice of Medicine in a neighbouring medical school—he will enter on his connection with you in this University as one not unfamiliar with students or with his work. There is no need that I should enlarge on the importance of that work, or on his fitness to perform it. Let me rather assure you, as I can do from many years acquaintance with him, that Dr. Cowan will fully appreciate the personal, as well as the official, duties of his professorship; that he will always be your friend as well as your teacher, and will carry into the performance of the duties of his high office the same courtesy, and kindness, and honour which have hitherto



marked so plainly his professional career. I ask you, therefore, to receive him as one who wishes you well, and who will, as we his colleagues all believe, prove to you a good, and able, and efficient professor. More than this I will not venture to say in his presence.

THE PRESENT ASPECT OF MEDICAL SCIENCE—OLD ORTHODOXY AND MODERN OPINION.

And now let me consider for a little the studies in which you are about to engage—first, in their more strictly professional aspect; and next, as a section of the studies in various faculties taught in this ancient University. The art of medicine is at this moment in a peculiar position. The day of *orthodoxies* is over, the day of *real science* is only just dawning. It is no longer possible to condemn a man, even by implication, for having ceased to believe what our fathers believed; but it is extremely difficult to state in general terms what we believe ourselves, and still more difficult to forecast the future, and to lay the foundations of the faith of our successors.

I speak, of course, in these remarks, chiefly of those principles which bear most directly on medical practice. We all believe, no doubt, in the circulation of the blood. The doctrine which laid the foundation of Harvey's fame—which was set aside by Bacon as unworthy of notice, and keenly advocated by Descartes—which troubled, in various degrees, the souls of Riolan, and Primrose, and Gui Patin,

and many others in the seventeenth century—is now a matter of assured conviction ; not however as an orthodoxy, *i.e.*, an affirmation sustained by authority ; but as a demonstrated fact, sustained by accurate investigation. No written or spoken creed is necessary to maintain this doctrine, simply because it stands upright and maintains itself to the convictions of all reasonable men. So also we all believe that lymph and chyle pass into the blood by the thoracic duct—that the blood contains iron as an essential part of its constitution—that the brain contains a large proportion of phosphorus, which to it is equally essential—that the nitrogen of our food passes into the blood as albumen and out of it as urea—that nerves are in part sensory and in part motor—that the tri-facial nerve is sensory and the portio dura of the seventh pair motor—that the gastric juice dissolves albuminous substances, and that the pancreatic fluid, assisted perhaps by the bile and the duodenal secretion, emulsionises fatty matters—that throughout the animal creation oxygen is absorbed from the air, and carbonic acid is given off to it—and that throughout the vegetable kingdom this process is mostly reversed. In all these instances we have well-ascertained and sure beliefs, founded upon exact researches, chiefly of the last half-century, and practically undisputed. But though true and assured beliefs, these things are not *orthodoxies*, because no one has a title to say to any one else, I insist that you believe so and so, or I will disown you as a professional brother.

When we look to the realm of pathology we find the circle

of these assured beliefs much smaller, but still there are a few such, and the principle on which the belief rests is the same. That in fevers, there is increased temperature of the blood corresponding to increased waste of nitrogenous and other principles of nutrition ; that in scurvy, there is a deficiency of certain imperfectly isolated principles of the food, represented by the acid juices of succulent vegetables and fruits ; that in small-pox, a poison enters the system by the skin or by the breath, multiplies itself in the blood, and is thrown out in a concentrated form in the pustules of the disease ; that the vaccine poison has certain curious relations to small-pox, in virtue of which it may be substituted for it in the human system, with the effect of protecting the individual so vaccinated from the more fatal disease ; that in cholera, a more or less analogous poison enters, probably by the mouth, and after multiplying itself within the body is discharged by the intestines in a form capable of reproducing the disease ; all these are examples of valuable and well ascertained truths, secured to us in some instances by extremely laborious researches, and capable of being turned to account in the relief of suffering humanity. And here again there is a general and indeed all but universal conviction, but no orthodoxy ; the truths maintain themselves by their inherent stability, and therefore are not imposed upon any one by any external system of verbal coercion.

But, when we try to push this process of analysis a little further, and to express in definite words the beliefs under which we act in our daily practice, how much there is of

imperfect knowledge, how little of secure and clearly defined conviction ! Is blood-letting useful in pneumonia, or in apoplexy ; and if so, in what cases, and to what extent ? Are alcoholic liquors useful in fevers, under what circumstances, and to what extent ? What is the cause, and what the preferable treatment of acute rheumatism ? Is mercury to be given in pericarditis, or other acute heart disease ? or in syphilis, and, if so, when and how ? Are diuretics useful in Bright's disease, and when ? Is opium needful in delirium tremens, and when ? How would you treat acute dysentery ? with calomel, or leeches, or ipecacuanha, or opium, or with none of these ? How would you treat cholera, with opium, or with purgatives, or with neither, and if with either, in what cases and under what conditions ? Who does not feel that in most of these instances questions have been started in which the old orthodoxies have been rudely shaken within the last twenty years, and in which nothing more definite or fixed can be alleged as having come in their place ? Who does not feel that to set up a new creed in any of these particulars now would be to insult the dignity of science, and to do incalculable injury to the cause of truth ? For in almost every one of these instances the wise and skilled physician of fully formed experience has profited largely, and his patients have profited still more, by the destruction of the authoritative beliefs involved in most of these questions. He now acts freely in the light of his own convictions and well-considered personal experience, where he was formerly bound in the chains of a



traditional opinion. Now, at last, he can call his soul his own. There is no opinion so ancient or so general that he *must* receive it. There is no opinion so modern or so eccentric that he *must* perforce reject it. Between the old and the new, the sound and the unsound, the orthodoxy and the heresy, a thoroughly modern physician, if he be only honest and able, now stands as an impartial judge ; unfettered, not seldom perplexed ; but adding calmly to his store of real science and personal experience, to see if it will yield him here and there a few useful grains of secure truth.

#### MEDICAL ORTHODOXY AND HERESY IN THE OLDEN TIME.

It was not always thus. The inimitable plays of Molière, the essays of Montaigne, the marvellous satires of Rabelais, contain many traces of a period when the strife between orthodoxy and heresy was as fierce and as full of bigotries on both sides in medicine as it ever was in the still greater controversies of religion. The letters of Gui Patin, dean of the Faculty of Medicine of Paris in the middle of the seventeenth century, have stereotyped for us and for all time, with the most charming frankness and simplicity, a state of opinion in which the circulation of the blood was still an almost forbidden faith more than thirty years after the facts were made clearly known by Harvey ;—a time in which all manner of chemical remedies were proscribed by a dominant opinion, as being unknown to Galen and Hippocrates ;—in which bleeding and purging figured as the authorised remedies for nearly all diseases and all stages of

them ;—in which antimony and Peruvian bark were denounced with equal bitterness—the one as savouring of the “chemists,” the other as the “powder of the Jesuits ;”—in which tea was an “impertinent novelty of the age,” and opium nothing better than a poison ;—in which, in short, the established orthodoxies of that particular era had to be maintained out and out, and were in fact maintained out and out, both as against old and new opinions—against Arabian traditions and modern innovations—with equal pertinacity ; and, no doubt, in many instances, as in that of our charming and garrulous Gui Patin, with equal good faith.

There was scarcely anything wanting in the midst of these acrimonious controversies to complete and to justify the satirical picture of Thomas Diafoirus in the pages of Molière : a simpleton by nature, turned by art into a physician ; drilled and tortured through a course of formal logic and pedantic learning into a regular round of fixed opinions ; his mind “well broken in and laced up in Spanish boots” (as Goethe has it), to the utter destruction, not only of all originality, but of all desire for originality. “We had all the trouble in the world (such is the picture) to teach him to read ; he was nine years old before he knew his A B C. . . . When I sent him to college he was much distressed at first, but he hardened himself against all difficulties, and his regents always praised him to me for his assiduity and for his work. At last after many strokes of the hammer on the iron, he has gloriously attained his

diploma ; and I can say, without vanity, that for the two years during which he has been upon our benches no candidate has made more noise than he in all the disputations of our school. He has become formidable, in fact ; there is not an act (*i.e.*, a public disputation) that he does not argue tooth and nail, right or wrong, for the contrary proposition. He is firm in disputing, strong as a Turk on his principles, never gives in an inch of his opinion, and pursues a verbal argument into the very uttermost recesses of logic. But, above everything, that which pleases me in him, and in which he follows my example, is that he attaches himself blindly to the opinions of our forefathers, and that he has never chosen either to comprehend or to listen to the reasons and the experiments of those pretended discoveries of our age touching the circulation of the blood, and other opinions of the same kidney.”<sup>1</sup>

The old Faculty of Medicine fell, having done its work both of good and of evil ; it could not survive in an era of experimental physiology ; the circulation of the blood was too much in the end for all the learning and all the orthodoxies of that most learned and most orthodox age. Still, we must not be unjust. The Faculty was not always obstinate, nor always in the wrong ; and even our honest Gui Patin, though prejudiced and bitter against what he thought to be quackery and causeless innovation, was by no means a Thomas Diafoirus. On the contrary, one sees in his letters everywhere the spirit of a true-hearted and genial

<sup>1</sup> *Le Malade Imaginaire*, Act. 2, Sc. 6.

physician, fettered, it is true, by traditional and authoritative opinions, but protesting with all his might against complicated and quackish remedies, bezoards, theriac, mithridate, as well as against all "occult qualities," alchemy, astrology, talismans, charms, and other manifest impostures. Nor can there be a doubt that his resistance to the progress of antimony and Peruvian bark were the testimony of a thoroughly honest and upright man against many and gross abuses in practice, upheld in the end by the sympathy of the Court, and, strange to say, by the support of that same Faculty with whose authority he had so often fortified his denunciations of Guénaut and the antimonialists.

The history of this last dispute is curious, and may be here condensed into a very few sentences. In 1566, the Faculty of Medicine had taken solemn action in the case of antimony, which the extravagant praises of Paracelsus and the chemists had brought into a kind of popular repute. The decree was apparently unanimous, and was to the effect that "by the authority of all who have been distinguished in medicine, and for reasons already submitted to the king, *antimony is deleterious, and to be counted among the simples which possess the quality of poisons. Nor can it be amended by any other preparation, so as to be taken without injury.*"<sup>1</sup> In 1615, another decree placed several chemical drugs, antimony included, under formal condemnation of the Faculty, which, "by the unanimous consent of all," inter-

<sup>1</sup> Facultatis de Antimonio Censura. Decretum in Scholis Medicinæ, tertio Calend. August, anno 1566.



dicted drug-vendors and all others from uttering these drugs ; and “calls upon all judges to deal severely with those who prescribe, administer, or exhibit for sale the said medicines.”<sup>1</sup> Both of these Acts were ratified by the Parliament of Paris, and both of them continued nominally in force till 1666, exactly a century after the passing of the first. But in the meantime antimony was gaining ground, quickened, no doubt, into a kind of popular fictitious reputation by the opposition of the doctors, till at last both Cardinal Mazarin and the King had been submitted to treatment by it at the hands of Guénaut, and after a controversy altogether unexampled in its fierceness and extravagance upon both sides, the balance in the Faculty itself began to incline in favour of antimony. Even so late as 1651, however, Guénaut, Beda, and Cornuti were formally condemned by the Faculty for being led away by antimony, “*spe lucri*,” writes Patin confidentially ; and this sentence, he adds in high jubilee of triumph, “has made them return to their duty, and if hereafter they fail in it we will not fail them ; we will apply the law and the power of the decree so keenly that they will remain expelled by it. . . . If we had suffered these three there, they would no doubt have attracted others, by the rule *Abyssus Abyssum invocat*.”<sup>2</sup> But, alas ! for big words and high-handed judg-

<sup>1</sup> This, with the preceding, I have taken from a foot-note in the edition of Gui Patin, edited by Reveillé-Parise, vol. i., p. 191. The Latin text is, however, extremely ill printed, and barely intelligible as there given.

<sup>2</sup> Op. Cit., vol. ii., p. 587.

ments ! In 1666, when Patin was no longer Dean, having been replaced by Le Vignon, the Faculty of Medicine of Paris again met on the 29th March, and “in an assembly of one hundred and two, decided by the vote and suffrage of ninety-two doctors, that *antimony is to be numbered among purging medicines, and that it shall be in the power of every doctor to prescribe it*, on fitting occasions, and to write and dispute publicly about it, provided always that these things are done for the general good. This decree was also confirmed, like the former ones, by an edict of the Parliament of Paris ; which, however, added a prohibition to all persons against the use of this medicine without the advice of the Faculty.<sup>1</sup>

One may imagine the disgust of Gui Patin at being thus foiled with his own weapons, and seeing his beloved Faculty invaded in force by the “*troupe stibblale et stigiale*,”<sup>2</sup> as he calls them in his somewhat savage irony. “I console myself,” he writes, “because there must be heresies, in order that the good may be tried ; but I have never been of the humour to adore the golden calf, nor to consider fortune as a goddess. . . . When the wind shall have changed, all these champions of antimony will be dispersed like the smoke of their furnace.” And so he withdraws quietly from the controversy. We hear little more either of Patin or of the much-abused Guénaut thereafter in the

<sup>1</sup> Patin's letters, *ut supra*, vol. iii., p. 609, gives the decree of the Parliament ; that of the Faculty I have found in Raynaud, “*Les Médecins au temps de Molière*, 1862,” p. 212.

<sup>2</sup> Letters de Gui Patin, vol. ii., p. 96.

Faculty of Paris. Guénaut, indeed, died the next year of an apoplexy, as we learn in a brief paragraph of a letter under date 17th May, 1667. It is curious that not a trace remains of the personal history or of the professional labours of this great disturber of orthodoxy in the seventeenth century. Boileau mentions him twice, in neither place in a complimentary manner. He is supposed to have furnished forth the dramatic portrait of M. Macroton, by Molière, in the *Amour Médecin*. It may be, perhaps, fairly presumed that the reproaches of the old Dean of Faculty were not altogether undeserved, and that this arch-antimonialist was one of those nimble and shifty persons who study much more effectually the ways of putting money in the purse, than of adding to the real knowledge and resources of the art of medicine.

#### THE LESSON OF THE PAST.

It is, perhaps, worth while to have detained you thus far over this old story, in order to draw from it the moral which it supplies. The century of bitter and violent controversy here alluded to did almost nothing, after all, towards the settlement of the question. The actual therapeutic properties of antimony were scarcely at all brought into view amid the dust and noise of the strife, and although pamphlet followed pamphlet in endless succession, filled with all the extravagance of the language of intemperate discussion, there is absolutely not one work of the whole farrago that contains a fact known to the nineteenth cen-

tury, or is referred to as in any degree valuable in the numerous investigations which the last hundred years have produced as regards this powerful and yet dangerous remedy. Its powers for good and for evil were alike lost sight of in the confusion of the struggle, and instead of a careful and judicial inquiry we have the humiliating spectacle presented to us of a mere wrangling for power, under the watchwords created by a statutory orthodoxy on the one side, and a fashionable heresy on the other. On the whole, it may be said that, had antimony never been discovered by Basil Valentine, the doctors of the Paris Faculty would have been none the worse, and their patients surely much the better. To arrive with anything like safety at an estimate of the value of this remedy, or a knowledge of its true properties, required not only a different temper of mind, but a far more enlarged circle of ideas, and a more carefully educated experience than that of any one of these old physicians.

How far have we that improved temper, that enlarged circle of ideas, that more carefully cultivated experience? How far can we hope to apply these to the ever new and unsolved difficulties of our own daily life and duty? How far does the instruction supplied to you, or placed within your reach, in this school, enable you to rise out of the mere routine of dead orthodoxies, and to take your place among the highly-endowed minds that are now everywhere working in the impartial light of modern science, at the problems of practical medicine?



These are questions, gentlemen, of no small importance to all of us. But more especially are they of importance to you, with whom the door is not yet closed, by the harassing and absorbing practical duties of life, to the elementary instruction which is to fit you for these duties. Suffer me therefore to address to you a few considerations on this subject, and to keep in view in doing so that you are not only pupils of a medical school, but members of an ancient University.

The first lesson to be learned in order to make all other lessons possible is, in my opinion, this—to deal very largely with things, and not with mere words; to realise, as much as you can, all your instruction, by making it your own through personal observation; to suffer nothing, if it can possibly be avoided, to lie in the mind as a dead weight of vocables, oppressing the memory, and dwarfing the intellect; but to bring everything into the living light of fact and of nature, and thereby at once assure to yourself the truth and exactness of your knowledge, while at the same time you are stamping it down upon the memory by the most sure and lasting of all technical methods.

This is essentially the modern spirit of scientific inquiry, in virtue of which alone you can rise out of the dogmatisms and orthodoxies of the past, to make secure and beneficial progress in the knowledge of your profession. It is to imbue you thoroughly with this spirit that we give you the freedom of dissecting-rooms, and laboratories, and museums, and hospitals. It is for this reason also that we urge upon

you, as a study of the first importance to your future welfare and progress, the fascinating pursuit of natural history, whether in the realm of geology, of botany, or zoology. That study, when rightly pursued, is, I hesitate not to say, at once the most agreeable and the most effective discipline for the work of the dissecting-room, the laboratory, or the hospital. It trains at once the mind and the senses ; and through the most wholesome and delightful observations of detail it leads up to the most profound generalisations and the most far-reaching theories. In even so simple a set of objects as those which lie between the petals of a daisy there are whole depths of thought, a thousand times more practical and more useful to you as medical men than all the speculations and assertions of all the pseudo-philosophers who wrote for or against antimony, from Basil Valentine in the thirteenth century to Gui Patin and Guénaut in the seventeenth. For in the one case you are feeding your mind with substantial truth, and realising it step by step as you go along ; in the other you are feeding on the wind of doctrine, and the result is simply nothing or worse than nothing—wasted time, disappointed effort, a painful sense of utter vacancy—“Vanity of vanities,” saith the preacher, “all is vanity !”

In the middle ages, and to a considerable extent also, though not without exceptions, in the early ages of the Greek philosophy, the whole method of science was precisely the opposite of that which I commended to you in the study of the daisy. It was to place before the mind in the first

instance the most abstract propositions and ideas, and to reason outwards *towards* the facts. Very often the facts were never reached at all, and then the whole process of thought ended, in what?—of necessity in formulas of words, which were handed down from teacher to scholar as ultimate solutions of the problem. Thus Democritus reduced the principles of things to “a concourse of atoms,” and was followed by the Epicureans, and by Lucretius; but neither Democritus nor the Epicureans, though setting forth a purely physical philosophy, concerned themselves in the least with the exact observation of facts, except in so far as was absolutely indispensable to give something like body and substantial illustration to their purely hypothetical atomic theory. So, too, the great controversy of the twelfth century was as to the essential *reality*, or the merely *nominal* existence, of genus and species, property and accident; but no one thought for a moment of extending thereby the knowledge of the actual *objects* included under genera and species, or of the actual *qualities of things* included under the description of properties and accidents. To do this would have appeared to Abelard, or to the followers of Aquinas or Duns Scotus in the two succeeding centuries, not only a waste of time, but a most shameful prostitution of Divine philosophy. And so in medicine, also, the study of words and notions of the mind came in place of the observation of symptoms; while occult qualities and inscrutable masses of polypharmacy came to represent the treatment of disease.

It would extend this lecture far beyond reasonable limits

were I to attempt to show you how the despotism of this false method was gradually relaxed, and the study of external objects substituted for that of mere notions or conceptions of the mind. Roger Bacon, even in the thirteenth century, opened the way in Natural Philosophy with surprising power and originality; but it was a "voice crying in the wilderness." Vesalius, of Brussels, in the sixteenth century, laid the foundations of modern anatomy, and was followed by a brilliant succession of discoverers, who, by their united labours, cleared the way for our English Harvey. Conrad Gesner, in Switzerland, explored the realm of Natural History; Rembert Dodoens, Fuchs, and in England, Gerard, the special province of botany. Greatest of all, Galileo Galilei dared for the first time to set forth physical facts in astronomy which were not only the result of independent observation, but in direct opposition to the dicta of the Church, and thus he set free for ever (notwithstanding his own submission) a host of the most enlightened minds from the sway of authority in matters of science.

But meantime the study of medicine proper, that is, of the healing art, remains even now to a very large extent governed by precedents derived from the past. Nor can this ever be otherwise; for the whole art of medicine is steeped in antiquity, and draws a large part of its most accurate and striking observations from a date long before the Christian era. So long as it can be said with truth that we inherit the labours and the very language of the schools



of Cos and Cnidus—so long as we follow prognostics derived from Hippocrates, and details of symptoms taken from Aretaeus, it cannot be a matter of indifference to an enlightened medical man, whether or not he knows those languages which bridge over the chasm between the nineteenth century and those remote epochs. I am not at all, therefore, on the side of those who, because they have cast aside the fetters imposed on our art in the middle ages, would therefore forget that medicine has a history. Rather would I have you use the freedom of the modern physician in such a way as to make it a graceful and real tribute to those great men whose names still shed a lustre over the healing art, and over the history of human opinion in all the arts and sciences.

THE IMPORTANCE TO MEDICAL MEN OF A KNOWLEDGE  
OF LANGUAGES.

I do not go the length of saying that it is indispensable for the average practitioner to be able to read freely the aphorisms of Hippocrates in the original Greek, but I certainly desire in the strongest manner that some knowledge of this glorious tongue, such at least as will help to solve a historical difficulty, or to follow out an inquiry into the nomenclature and description of diseases, should always be preserved, along with a reasonable knowledge of Latin as a feature of the medical curriculum. And here let me say a good word for the modern languages, and especially for French and German. Without these languages a physician

or surgeon in the present day is not more than half educated. However carefully he may have been placed abreast of the science of the age when at College, he finds in a few years that he is losing ground, and that the progress of inquiry is opening up everywhere new lines of investigation which are practically closed to him because he has failed to provide the key to them in these two languages. There is not a single subject, I believe, in anatomy, physiology, practice of medicine, on which a man could at the present moment fairly say that he has mastered the latest information without a careful reading of some German *archiv* or French journal; and, in fact, I am every day consulted by students and practitioners, to whom I find it impossible to communicate accurate ideas without referring them to such sources of information—which, in too many instances, they declare their inability to consult. To every one, therefore, to whom foreign languages are not an insuperable obstruction, I would say—avail yourselves by all means of the services of the excellent teachers of these languages in this city, and do so as soon as possible.

MENTAL CULTURE, AND AN ADVANCED STANDARD OF  
QUALIFICATION FOR MEDICAL PRACTITIONERS.

As a part of mental training, a course either of Mental Philosophy, or of combined mathematical and physical science, should always form an element in the education of the medical practitioner. Through these the reasoning

powers are disciplined, and the mental equilibrium, as it were, is preserved. The constant education of the observing faculties which falls to the lot of the medical man, both in the course of his studentship and in his daily practice, the numerous interruptions to which he is exposed, and the irregular nature of his employment, have all a tendency, I fear, to weaken the habit of continuous sustained attention and concentrated effort, which is of so much importance to the stability and power of the intellect. It is but too evident, also, as matter of fact, that medical practitioners have a constant tendency to slip into habits of routine ; that they soon abandon, in many cases, their professional reading, or do it hastily ; that they often prescribe the first medicine that offers, without anything like effective thought given to the details of a case ; that they not seldom get into the habit of treating obvious symptoms without due inquiry into the cause of the symptoms ; and, altogether, are very apt to go through the work of their profession in a somewhat perfunctory manner, excusing themselves by want of time, which, indeed, is often enough a very cogent excuse. But I am, nevertheless, strongly of opinion, and have never hesitated to express this opinion to my own class, that it is the clear duty of the physician either to *have* or to *make* the time necessary for doing justice to his work. And I strongly suspect that if the minds of some of these excessively and inordinately busy men had been a little better cultivated at first—if the reflective faculties had been more thoroughly developed by early training, they would have found it not

only a pleasure and a duty, but an imperious moral necessity, so to arrange their business as to have a reasonable amount of time for concentrated exact thinking upon all matters presented to their observation. There is one symptom, in particular, which I cannot avoid stating to you as indicating very clearly the extent to which this mental defect prevails in our profession. This is the very marked disinclination often displayed by men in large practice to write even the most brief accounts of their experience, if the effort required for doing so in a lucid and satisfactory form is at all considerable. The excuse here again is want of time ; but when it is remembered that Heberden wrote his Commentaries (probably the most lucid, accurate, and concentrated work in all modern literature) when he was nearly eighty years of age, and as the result of notes continued and condensed over a whole lifetime ; and that such men as Matthew Baillie, Fothergill, Cheyne of Dublin, Abercrombie (not to name living practitioners), have retained amid the very largest practice, and cherished as part of their duty to themselves and to their profession, the faculty of recording the results of their great experience from time to time, in brief, terse, well-argued memoirs, I think it will be admitted that the propriety and the duty of doing in like manner may be fairly pressed upon the men of this generation, and upon you, the candidates for an honourable place in the next. “ Reading,” says Lord Bacon, “ maketh a full man, conference a ready man, and writing an *exact* man.” It is precisely this quality of exactness that is one of the highest, and, in



the larger aspect of the matter, one of the rarest and most valuable results of medical diagnosis. I do not think that this faculty can be better cultivated than by recording the results of experience, not necessarily for publication, but still habitually, and in such form as would admit of publication in case anything should render that a desirable object for others. I am sure you will all feel yourselves the better for taking up and following out this suggestion.

But you will say, how, with the small remuneration usually given to the general practitioner, can he possibly afford to do otherwise than hurry over his work? This is, no doubt, a most serious and most pertinent question; but to this I can only answer at present that if, as I believe, a much more exact and thorough kind of professional work is required for the efficient service of the public, done, as it must be in future by men of larger culture, and increased power of mental application, I have no reason to doubt that the necessary remuneration will be given. There can be no difficulty, I think, in making good the position that the standard both of the fees and of the qualification of practitioners in this great city and neighbourhood has hitherto been a great deal too low. But the true remedy is, in my opinion, to raise the standard of qualification, and thereby to present, on the part of the rising generation of practitioners, a clear and undeniable claim for a higher scale of remuneration from the public.

## CONCLUDING WORDS.

Let me now condense into a few words, in conclusion, the practical instructions I have endeavoured to give you in this address. Acknowledge us as your Professors, and make use of us as your teachers and helpers ; observe discipline ; keep the statutes of the University as to conduct ; but, in the matter of medical opinion, examine everything as much as possible for yourselves, and “call no man master.” For the purpose of improving and realising your knowledge, avail yourselves fully of hospitals, dissecting rooms, microscopes, chemical laboratories, museums, &c., as well as lectures ; and, in using these see that all points of demonstrable fact which occur are made perfectly plain to you as you go along. Cultivate the art of writing well, which makes the *exact* man, even in preference to much reading, which makes the *full* man. Seek to know facts, not words ; things, and not mere statements of things. Especially in Natural History, and in the descriptive details of medical science, avoid mere learning by rote ; a name without an idea in these sciences is simply a *foreign body*, as it were, introduced into the mind. Cultivate the natural sciences with all your powers—they are the most direct means of instruction for the medical profession. Languages, however, are the chief instruments of that general culture which makes a man an accomplished gentleman, and have besides much special usefulness to the medical profession ; study, therefore, to retain your Latin and Greek, and add to them, if possible, French and German ; lastly, do not neglect the training and

hardening of the mind itself to intellectual exertion, which may be best accomplished by the study of Logic and Moral Philosophy, or of Mathematics with Natural Philosophy.

To which I will add only one thing more—"Work, while it is called to-day; the night cometh when no man can work." Not a single session has passed over our heads since I was appointed to my office among you, that has not paid its tax of life to the great Reaper, whose harvest is always ready, whose sickle is never weary. Live, I beseech you, as in the sight of God, the Judge of all; that if He should call you away, we may yet feel sure that all is well. I tremble, lest to the bitterness of parting should be added the pang of remembering that the parting came in the midst of sin, or of idleness, or amid angry words and personal offence. Go, therefore, to your work with the determination, once for all, to take the better part; to be from this day onwards the Christian gentlemen that I trust you mean to be; to let no malice, nor uncharitableness, nor anger, nor evil-speaking, nor uncleanness, come between you and your profession: and, finally, pray to God daily, with us, that you and we may continue to encourage each other, by precept and example, in every good word and work.